

TO THE EDITOR: I was most interested in the article by White and Frank on vegetarianism, particularly in their statement that vegetarians have lower mortality than the population at large. I would have thought that the lifetime incidence of mortality among vegetarians was the same as among the omnivorous, that is, 100%. If it is true that vegetarians do not die, I think this finding is much more significant than is evidenced by the small print in which this remarkable result was presented. Perhaps the statement that they have a lower mortality than other people was somewhat misrepresentational. If they do die, of what do they die and when?

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#### Drs White and Frank Respond

TO THE EDITOR: Successful veganism requires a commitment and a modest sophistication in food choices, as Berquist and Ceresa and we in our article acknowledge. Eating animal-derived foods, in contrast, seems widespread and natural among humans.<sup>1</sup> Because meat was, for our ancestors, a scarce but rich source of protein, it was highly desired. This remains true, except that meat has become abundant. With a fast-food outlet on each corner, successful "hunting" has acquired long-term dangers. Beef supplied by the modern meat-producing industry, marbled with saturated fat, does not resemble wild game in its fat composition—although fish and chicken do. While we concur that modest consumption of lean meat is probably compatible with good health, we contend that humans do not need and may be harmed by frequent meat consumption—depending upon the fat composition. Beans, however, are a good source of protein and a poor source of fat and cholesterol.

One statement made by Berquist and Ceresa requires correction. The participants in the Stanford Five-City Project ate either a vegan or a low-fat lacto-ovo vegetarian diet. No conclusion that "the majority of vegetarians are only partial" is justified, for we do not know the proportion of subjects in each group. We, too, await high-quality epidemiologic data for the answer to this and other questions. In the meantime, we doubt that many could reject our conclusion that everyone could benefit, physiologically or ecologically, from reduced meat consumption.

Dr Loosli has made a clinically important point, to which we briefly alluded: vegetarianism may be associated with eating disorders, hyperathleticism, anemia, and menstrual irregularity in young women. Whether the meat restriction is causal or merely an associated feature

remains undetermined. Decreased meat consumption can be associated with lower circulating estrogen levels in women, as documented by Pedersen and colleagues, who speculate that increased fiber or phytoestrogen intake, or both, may be the cause.<sup>2</sup> They also speculate that such a diet may protect against breast cancer and may decrease reproductive capacity, but the latter notion is partially contradicted by the vegetarians taking part in the study having, on average, a greater number of children than their omnivorous counterparts.

An alternative explanation of amenorrhea in vegetarian, obsessive runners, such as those studied by Gadpaille and co-workers, is that such athleticism is an eating-disorder equivalent.<sup>3</sup> Vegetarianism would be a rationalization for dietary restrictions and amenorrhea a symptom of the underlying disorder—as it is in anorexia nervosa.

Clinical experience and some data suggest that certain young women restrict their diets and call themselves vegetarians, but their motives are more psychopathologic than environmental or salubrious. They are at increased risk for iron-deficiency anemia.<sup>4,5</sup>

Our review was intended to inform physicians about vegetarian diets and the issues they should consider in a clinical setting. Dr Loosli makes it clear that in young women, a menstrual history is important, especially in athletes, as is a complete blood count in selected patients. Consultation with a nutritionist may help some patients. The conclusion, however, that all young vegetarian women will "sacrifice their bones, become anemic, develop eating disorders, and have injuries" is hyperbole, unsubstantiated by the available literature. In general, the literature concludes that vegetarians derive health benefits from their dietary choices.

Finally, Dr Fitzgerald correctly points out an error in our highlights section. While it would certainly be worth highlighting if vegetarians had lower mortality than omnivores, we regret that it is only true that they have lower mortality rates than do omnivores.

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